

THE IDENTITY AND SYNONYMY OF *PHEIDOLE VIGILANS*,
A COMMON ANT OF SOUTHEASTERN AUSTRALIA
(HYMENOPTERA: FORMICIDAE)

By WILLIAM L. BROWN, JR.*

Manuscript received November 11, 1970]

Abstract

The common *Pheidole* species of southeastern Australia that is usually called *Pheidole yarrensis* is actually *P. vigilans* (F. Smith), of which the following are subjective junior synonyms as based on type comparisons: *P. dolichocephala* André, *P. ampla* var. *yarrensis* Forel, *P. ampla* var. *parallela* Forel, and *P. ampla norfolkensis* Wheeler.

Research rounds of the main European museums holding major ant collections were made in 1963 and 1964 with the support of U.S. National Science Foundation Grant GB-23680. Among complexes studied, the *Pheidole ampla* group of Australia came in for special attention, mainly because of problems attending identifications of what has usually in recent years been called *Pheidole ampla yarrensis*, or simply *Pheidole yarrensis*. The ant in question is the most familiar *Pheidole* species in the better-watered parts of southeastern Australia, and it has also been introduced into New Zealand (Cumber 1959).

Due to the cooperation of the European museum authorities involved, I was able to make comparisons of the types relevant to its synonymy, both directly and through fresh series brought from Australia for the purpose. The formal synonymy indicated is as follows:

Pheidole vigilans

Atta vigilans Fred. Smith, 1858, *Cat. Hym. Brit. Mus.* 6: 166, worker (major). Type locality Melbourne.

Syntypes in British Museum (Natural History), examined.

Pheidole dolichocephala Ern. André, 1896, *Revue Ent.* 15: 262, soldier. Type locality "Australie occidentale", probably in error. Syntypes (2 soldiers = workers major) in Muséum Nationale d'Histoire Naturelle, Paris, examined. **New synonymy.**

Pheidole ampla: Forel, 1901, *Annls Soc. ent. Belg.* 45: 377, soldier, worker, queen from Yarra District (Victoria); *non Pheidole variabilis* r. *ampla* Forel, 1893, *ibid.*, 37: 462, soldier, type locality Wallaby Island, West Australia, type soldier examined in Muséum d'Histoire Naturelle, Geneva.

Pheidole ampla var. *yarrensis* Forel, 1902, *Revue suisse Zool.* 10: 434, soldier, worker, queen. Type locality "Yarra districts, Victoria". Syntypes in Muséum d'Histoire Naturelle, Geneva, examined. **New synonymy.**

Pheidole ampla var. *parallela* Forel, 1902, *ibid.*, p. 435, soldier, worker, male. Type locality "N.S. Wales". Syntypes in Muséum d'Histoire Naturelle, Geneva, examined. **New synonymy.**

Pheidole ampla subsp. *norfolkensis* Wheeler, 1927, *Proc. Am. Acad. Arts Sci.* 62: 134-135, fig. 3, soldier, worker. Type locality Norfolk Island. Syntypes in Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, U.S.A., examined. **New synonymy.**

Pheidole vigilans is a common, moderately variable species inhabiting the south-eastern corner of the Australian continent. For the present, the "typical" *Pheidole ampla* is excluded from this synonymy, for reasons explained below. The same holds true for the little-known Queensland forms (*ampla* var. *mackayensis*, *ampla* var. *parviceps*), which should probably be considered as provisional species until their status has been properly studied on the basis of better material than is now available. The form *mackayensis*, at least, may well prove to be another synonym of *P. vigilans*.

* Department of Entomology, Cornell University, Ithaca, New York, 14850, U.S.A.

Pheidole vigilans appears to be an eastern species, while *P. ampla* may possibly be confined to Western Australia. The two are undeniably close, but so far as we now can tell *ampla* is larger, the type soldier head length being 0.90 mm, head width about 0.82 mm (one side sunken in glue). In comparison, the head length of the *vigilans* type soldier is 0.83, and the head width 0.75 mm. A soldier syntype of var. *parallela* has head length 0.85, head width 0.73 mm. The promesonotum of the "yarrensensis" soldier is not always "absolument lisse", as claimed by Forel, but often has a couple of feeble oblique rugulae on each side; the *parallela* type soldiers have some very fine, superficial, semistriate promesonotal sculpture, visible only in certain lights. In both these forms, however, the promesonotum is distinctly shining throughout, and appears to be smooth over most of its surface.

The types of *norfolkensis* average smaller than mainland series of *vigilans*, but this and other differences cited by Wheeler are not very impressive when direct comparison is made; in fact, a *vigilans* syntype soldier is just barely measurably larger than 2 *norfolkensis* types compared with it at 40 \times .

The minor workers of *vigilans* differ from those of *ampla* in having smaller eyes. In *ampla*, the eyes are about as long as the distance between them and the mandibular insertion, and they are longer than the penultimate antennal segment. The head of *ampla* often bears 2-4 or more fine, widely spaced longitudinal rugae high on the vertex near the posterior margin, the sides of the promesonotum are rather distinctly margined by longitudinal rugulae, and the propodeal teeth are slender and spiniform. In *vigilans*, the vertex of the worker minor is smooth above, without rugulae, and the promesonotum lacks distinct rugular margins. The eyes are small, very distinctly shorter than their distance from the mandibular insertions, and shorter, or at least not longer, than the penultimate antennal segment. The propodeal teeth, while variable, are very short, and scarcely to be described as spiniform.

The confusion surrounding the *ampla-vigilans* complex is deepened by the Western Australian samples that appear to intergrade between *ampla*, with perfectly smooth vertex in the soldier, to *variabilis*-like forms with the rugulae passing into transverse sculptural fields on the "occipital lobes". The type series of *P. ampla perthensis* Crawley is one such intergradient sample. The relationship of *ampla* to *variabilis* constitutes a complex problem that I can pose, but not settle here.

Other problems in Australian *Pheidole* are raised by misidentifications and mixed series. Smith's series of *vigilans* contain two different species, for example, and in the Wheeler Collection (MCZ), some series even on single pins are mixed. Specimens in various collections determined by Clark as "*Pheidole dolichocephala*" are probably not even in the same group as *vigilans*.

REFERENCE

- CUMBER, R. A. (1959).—Distributional and biological notes on sixteen North Island species of Formicidae (Hymenoptera). *N. Zealand Entomologist* 2: 13.